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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,673	05/16/2001	Kazuyoshi Irie	503.36712VX1	2143

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EXAMINER	
MCHENRY, KEVIN L	

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/855,673	IRIE ET AL.	
	Examiner	Art Unit	
	Kevin L McHenry	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 16 May 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8/23/01.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 1-20 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 11-26 and 29-32 of copending Application No. 10/244,010. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "16" has been used to designate both a gap on page 17 and a metallic mesh on page 18. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 97 and 19. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action

to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 30. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3-8, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin et al. (U.S.P. 6,069,291) in view of Tom et al. (U.S.P. 6,030,591) and Seppänen et al. (U.S.P. 5,674,797).

Rossin et al. teach a method of processing perfluoride compounds in which a gas stream containing the perfluoride compounds from a semiconductor process contacts a hot catalyst that is heated to a desired processing temperature. Rossin et al. teach that the catalyst may be in the form of pellets, granules, or cylinders. Rossin et al. also teach that the temperature of the catalyst may be controlled and that air and water may be mixed with the gas flow before contacting the gas with the catalyst. An acid removal

step, through a means such as a scrubber, may be performed after contacting the gas with the catalyst. (See U.S.P. 6,069,291; column 2, lines 53-65; column 3, lines 48-59; column 4, lines 9-18; column 5, lines 13-47). The acid removing scrubber would also perform the same function as a cooler because of the cooling nature of the spray in a scrubber.

Rossin et al. do not teach the use of a silicon component removal device.

Tom et al. teach a method of processing halocarbons in effluent gas streams from semiconductor processing. Tom et al. note that the presence of these materials and other contaminants cause a problems for adsorption recovery/recycle systems because they cause clogging of void space in the adsorbent. To solve this, the process employs a contaminant removal means, such as a wet scrubber to remove contaminants such as $SiCl_4$. Tom et al. also teach that more than one scrubber may be used in series and that check valves may be used to prevent back flow in the recovery/recycle process. (See U.S.P. 6,030,591; column 3, lines 1-51; column 4, lines 7-26; column 5, lines 24-38; column 6, lines 62-67; column 10, lines 13-18).

Seppänen et al. note that reactions may also entail undesirable side reactions that create products that clog the pores of catalysts and impair the activity of the catalyst, slowing down the reaction rate of the process. (See U.S.P. 5,674,797; column 1, lines 42-46).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Rossin et al. by the teachings of Tom et al. and Seppänen et al. One of ordinary skill would have been motivated to use a wet scrubber to remove contaminants from the gas stream, as taught

by Tom et al., before contacted the gas stream with the catalyst bed in order to prevent fouling of the catalyst, in light of the teachings of Seppänen et al. that fouling of catalysts causes reduced activity and reaction rates. Further, it would have been obvious to one of ordinary skill in the art to place the heated catalyst and acid scrubber in a single body in order to save valuable floor space, rather than spacing the processes apart with conduits running in between.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin et al. (U.S.P. 6,069,291) in view of Tom et al. (U.S.P. 6,030,591) and Seppänen et al. (U.S.P. 5,674,797) as applied to claims 1, 3-8, 15, and 16 above, and further in view of Imamura (U.S.P. 5,649,985) or Izumikawa et al. (U.S.P. 6,022,489).

The former references teach the process described above in section 7. However, these references do not teach the use of a heat exchanger.

Imamura and Izumikawa et al. teach the use of heat exchangers to exchange heat between gas exited a reactor and gas that is entering the reactor. (See U.S.P. 5,649,985; column 3, lines 10-15; See U.S.P. 6,022,489; column 3, lines 20-23).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Imamura or Izumikawa et al. One would have been motivated to use a heat exchanger to exchange heat between the hot catalytic exhaust gas and water that is being added before the catalyst in order to raise the water temperature and reduce the cost of heating the catalyst to the proper process temperature.

9. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin et al. (U.S.P. 6,069,291) in view of Tom et al. (U.S.P. 6,030,591) and Seppänen et al. (U.S.P. 5,674,797) as applied to claims 1, 3-8, 15, and 16 above, and further in view of Holst et al. (U.S.P. 5,955,037).

The former references teach the process described above in section 7. However, these references do not teach the structure of the wet scrubber inlet or the use of a diffusion portion in the wet scrubber.

Holst et al. teach a semiconductor scrubbing process in which the exhaust inlet to the wet scrubber extends into the scrubber at a position lower than the spray apparatus. The inlet opening is designed so that the top portion extends further than the bottom portion, causing an overhang. Holst et al. teach that this design allows for the effluent gas stream to be sheathed in a protective gas without premature contacting of the effluent gas with liquid. Holst et al. also teach the use of a demister pad to remove entrained water. (See U.S.P. 5,955,037; Figure 10; column 19, lines 36-67; column 20, lines 15-23).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Holst et al. One would have been motivated to use an inlet with an overhang to allow an effluent gas stream to be sheathed in a protective gas without premature contacting of the effluent gas with liquid and to use a demister pad to remove entrained water, as taught by Holst et al.

10. Claims 2, 11, 12, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin et al. (U.S.P. 6,069,291) in view of Tom et al. (U.S.P. 6,030,591) and Seppänen et al. (U.S.P. 5,674,797) as applied to claims 1, 3-8, 15, and 16 above, and further in view of Smith et al. (U.S.P. 5,417,934).

The former references teach the process described above in section 7. However, these references do not teach the use of a removable catalyst cartridge or temperature sensors.

Smith et al. teach a heated catalyst that includes a heater surrounding a catalyst bed that is contained within a removable cartridge casing. A temperature controller is attached to the catalyst heater and temperature sensors are attached in upper and lower regions of the cartridge. (See U.S.P. 5,417,934; Figures 1 and 2; column 1, lines 10-24; column 2, lines 5-18; column 4, lines 22-23, 30-40). Smith et al. shows the cartridge being removed from the top of the reactor body in Figure 2. However, one of ordinary skill in the art would understand that the cartridge could also be removed from the bottom of the heater and that this might be advantageous when there are bulky conduits or equipment above the reactor.

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Smith et al. One would have been motivated to do so in order to provide sensing means for the operation of a temperature controller and to provide a means for replacing the catalyst used in the reactor. One of ordinary skill in the art use a detachable acid remover/cooler so it can be removed to gain access to the reactor and removable catalyst cartridge.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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